Amendments to the Claims

Claims 1, 22, and 23 are currently amended. Claims 2 – 21 are original. Claims 24-26 are
newly entered. No new matter is introduced by these amendments. Consideration of all
claims is respectfully requested.

5   **Listing of Claims:**

Claim 1 (currently amended): A method for controlling timing of a mobile unit, the
        mobile unit connected to a base station via radio communication, the base
        station transmitting wireless signals to the mobile unit according to a plurality
        of frames within a ~~time division multiple access (TDMA)~~ communication

10   system, the mobile unit comprising:

a micro-controller unit for running a real-time operating system to load a
        plurality of control procedures used to control operation of the mobile
        unit, the control procedures including a synchronous task;

a timing generator electrically connected to the micro-controller unit for

15   controlling timing of the mobile unit corresponding to the frames; and

a clock generator electrically connected to the micro-controller unit for
        generating a first clock signal to drive the micro-controller unit;

the method comprising:

using the micro-controller unit to execute the synchronous task for interrupting

20   other control procedures currently loaded by the real-time operating
        system, and using the synchronous task to calculate a predetermined
        sleep period for a sleep mode that is used to stop the first clock signal
        from driving the micro-controller unit;

using the micro-controller unit to execute the synchronous task for driving the

25   mobile unit to stop the first clock signal from driving the
        micro-controller unit during an actual sleep period; and

using the micro-controller unit to execute the synchronous task for controlling
        the timing generator to synchronize timing of the mobile unit with timing
        of the base station according to the actual sleep period.

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Claim 2 (original): The method of claim 1 further comprising:

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executing the synchronous task for determining whether each of other loaded

control procedures corresponds to an idle status to drive the mobile unit

to enter the sleep mode.

5   Claim 3 (original): The method of claim 1 wherein the synchronous task is an

interrupt service routine that has a highest priority among the control

procedures.

Claim 4 (original): The method of claim 1 wherein the predetermined sleep period is

10   an integral multiple of a period of a frame.

Claim 5 (original): The method of claim 1 wherein the mobile unit further comprises a

sleep mode status register for recording information corresponding to an

operational status of the sleep mode.

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Claim 6 (original): The method of claim 5 further comprising:

executing the synchronous task for reading the information recorded in the

sleep mode status register to decide whether the mobile unit needs to

abort the sleep mode before entering the sleep mode.

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Claim 7 (original): The method of claim 5 further comprising:

executing the synchronous task for reading the information recorded in the

sleep mode status register to decide whether the mobile unit needs to

abort the sleep mode after entering the sleep mode.

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Claim 8 (original): The method of claim 7 further comprising:

terminating the sleep mode when an external event triggers the mobile unit.

Claim 9 (original): The method of claim 7 further comprising:

30   terminating the sleep mode after the mobile unit enters the sleep mode and

undergoes the predetermined sleep period.

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Claim 10 (original): The method of claim 3 wherein the clock generator further
  generates a second clock signal for counting the actual sleep period of the
  sleep mode after the mobile unit enters the sleep mode.

5   Claim 11 (original): The method of claim 10 wherein the mobile unit further
  comprises:
  a first counter electrically connected to the clock generator for counting cycles
    of the first clock signal to generate a first count value, the first count
    value being stored in a first register, the first count value being reset to an
10   initial value for re-counting the first clock signal when the first count
    value is increased from the initial value to achieve a predetermined count
    value, when the first count value is reset being a timing used to
    distinguish two adjacent frames; and
  a second counter electrically connected to the clock generator for counting
15   cycles of the second clock signal to generate a second count value.

Claim 12 (original): The method of claim 11 further comprising:
  calculating a threshold value that is a total amount of cycles of the second
    clock signal corresponding to the predetermined sleep period, and storing
20   the threshold value into a second register.

Claim 13 (original): The method of claim 12 further comprising:
  after the threshold value is calculated, activating the second counter to count
    cycles of the second clock signal, and simultaneously storing the first
25   count value currently counted by the first counter in a third register.

Claim 14 (original): The method of claim 13 further comprising:
  calculating the actual sleep period according to the threshold value stored in
    the second register, the first count value stored in the third register, and
30   the second count value.

Claim 15 (original): The method of claim 12 further comprising:

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if the second count value equals the threshold value or the mobile unit is
triggered by an external event, stopping the second counter and
terminating the sleep mode for making the first clock signal drive the
micro-controller unit.

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Claim 16 (original): The method of claim 11 further comprising:
when the first count value counted by the first counter reaches the
predetermined count value, controlling the mobile unit to start entering
the sleep mode to stop the first clock signal from driving the
10   micro-controller unit.

Claim 17 (original): The method of claim 10 wherein a frequency of the first clock
signal is greater than a frequency of the second clock signal.

15   Claim 18 (original): The method of claim 1 wherein the synchronous task comprises:
a hardware driver for controlling a hardware setting of the mobile unit; a sleep
manager for controlling operation of the sleep mode; and a scheduler for
commanding the hardware driver to control the mobile unit.

20   Claim 19 (original): The method of claim 18 further comprising:
executing the sleep manager before the hardware driver, and executing the
scheduler before the sleep manager.

Claim 20 (original): The method of claim 19 wherein the synchronous task is
25   repeatedly executed for controlling the mobile unit to enter the sleep mode,
and the scheduler run in a first synchronous task controls the hardware driver
run in a second synchronous task following the first synchronous task.

Claim 21 (original): The method of claim 1 wherein the mobile unit is a cellular
30   phone.

Claim 22 (currently amended): A method for controlling timing of a mobile unit, the

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mobile unit connected to a base station via radio communication, the base
station transmitting wireless signals to the mobile unit according to a plurality
of frames within a ~~time-division-multiple-access (TDMA)~~ communication
system, the mobile unit comprising:

5   a micro-controller unit for running a real-time operating system to load a
            plurality of control procedures used to control operation of the mobile
            unit, the control procedures including a synchronous task;
        a timing generator electrically connected to the micro-controller unit for
            controlling timing of the mobile unit corresponding to the frames; and
10   a clock generator electrically connected to the micro-controller unit for
            generating a first clock signal to drive the micro-controller unit;
        the method comprising:
        using the micro-controller unit to assign a highest priority to the synchronous
            task among the control procedures;
15   using micro-controller unit to execute the synchronous task for calculating a
            predetermined sleep period for a sleep mode that is used to stop the first
            clock signal from driving the micro-controller unit;
        using the micro-controller unit to execute the synchronous task for driving the
            mobile unit to stop the first clock signal from driving the
20   micro-controller unit during an actual sleep period; and
        using the micro-controller unit to execute the synchronous task for controlling
            the timing generator to synchronize timing of the mobile unit with timing
            of the base station according to the actual sleep period.

25 Claim 23 (currently amended): A method for controlling timing of a mobile unit, the
        mobile unit connected to a base station via radio communication, the base
        station transmitting wireless signals to the mobile unit according to a plurality
        of frames within a ~~time-division-multiple-access (TDMA)~~ communication
        system, the mobile unit comprising:
30   a micro-controller unit for running a real-time operating system to load a
            plurality of control procedures used to control operation of the mobile
            unit, the control procedures including a synchronous task;

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a timing generator electrically connected to the micro-controller unit for

controlling timing of the mobile unit corresponding to the frames; and

a clock generator electrically connected to the micro-controller unit for

generating a first clock signal to drive the micro-controller unit;

5   the method comprising:

using the micro-controller unit to assign a first priority to the synchronous task

among the control procedures, the first priority not corresponding to a

lowest priority;

using micro-controller unit to execute the synchronous task for calculating a

10   predetermined sleep period for a sleep mode that is used to stop the first

clock signal from driving the micro-controller unit;

using the micro-controller unit to execute the synchronous task for driving the

mobile unit to stop the first clock signal from driving the

micro-controller unit during an actual sleep period; and

15   using the micro-controller unit to execute the synchronous task for controlling

the timing generator to synchronize timing of the mobile unit with timing

of the base station according to the actual sleep period.

Claim 24 (new): The method of claim 1, wherein the communication system is a time

20   division multiple access (TDMA) system, a wideband code division multiple

access (WCDMA) system, or a code division multiple access (CDMA) system.

Claim 25 (new): The method of claim 22, wherein the communication system is a

time division multiple access (TDMA) system, a wideband code division

25   multiple access (WCDMA) system, or a code division multiple access (CDMA)

system.

Claim 26 (new): The method of claim 23, wherein the communication system is a

time division multiple access (TDMA) system, a wideband code division

30   multiple access (WCDMA) system, or a code division multiple access (CDMA)

system.

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